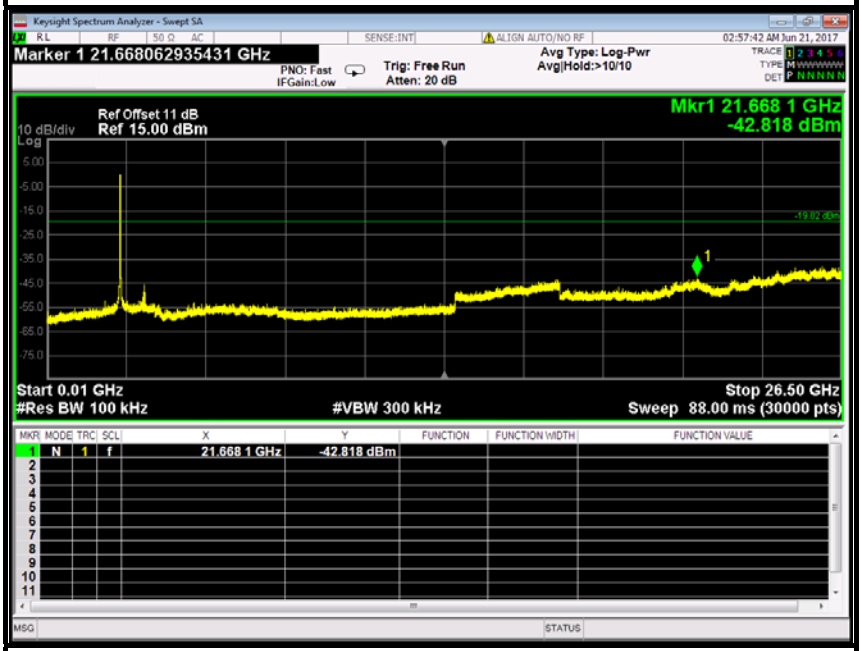
CH High (10MHz ~26.5GHz)



CH High (2.31GHz ~2.45GHz)

7.2.2. RADIATED EMISSIONS MEASUREMENT

7.2.2.1. LIMITS OF RADIATED EMISSIONS MEASUREMENT

According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

1. In the emission table above, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

NOTE:(1) The lower limit shall apply at the transition frequencies.
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

7.2.2.2. TEST INSTRUMENTS

Radiated Emission Test Site 966(2)					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	02/21/2017	02/20/2018
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	02/21/2017	02/20/2018
Amplifier	EMEC	EM330	060661	03/18/2017	03/17/2018
High Noise Amplifier	Agilent	8449B	3008A01838	02/21/2017	02/20/2018
Loop Antenna	COM-POWER	AL-130	121044	09/25/2016	09/24/2017
Bilog Antenna	SCHAFFNER	CBL6143	5082	02/21/2017	02/20/2018
Horn Antenna	SCHWARZBECK	BBHA9120	D286	02/28/2017	02/27/2018
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	02/28/2017	02/27/2018
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	02/21/2017	02/20/2018
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The FCC Site Registration number is 101879.

3. N.C.R = No Calibration Required.

7.2.2.3. Measuring Instruments and Setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10kHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10kHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

7.2.2.4. TEST PROCEDURE (please refer to measurement standard)

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna height is 0.8 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz
Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

Pre measurement:

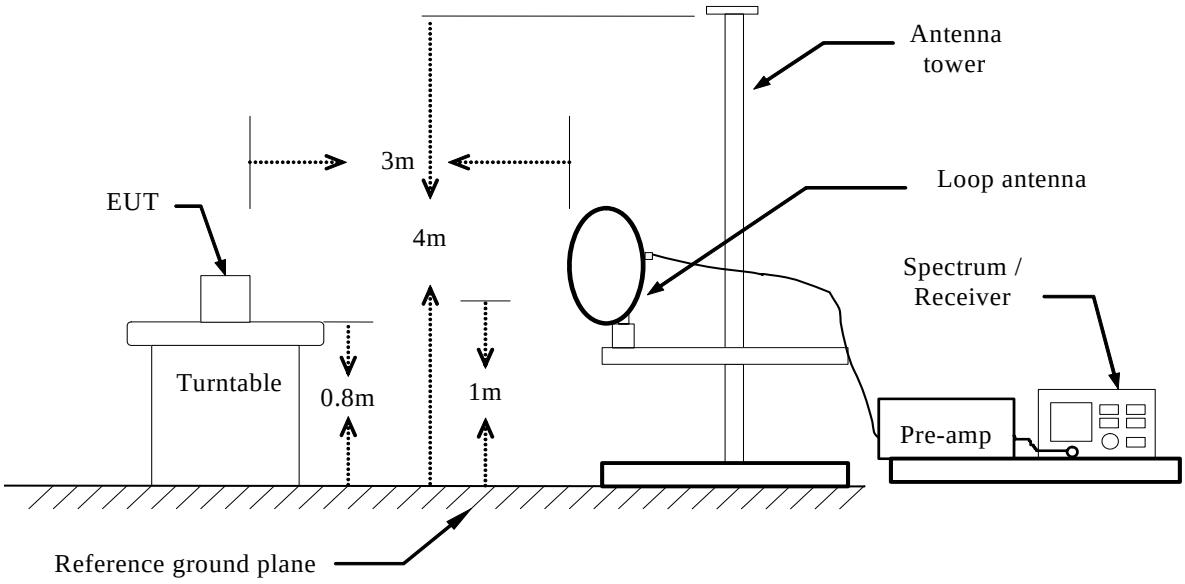
--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

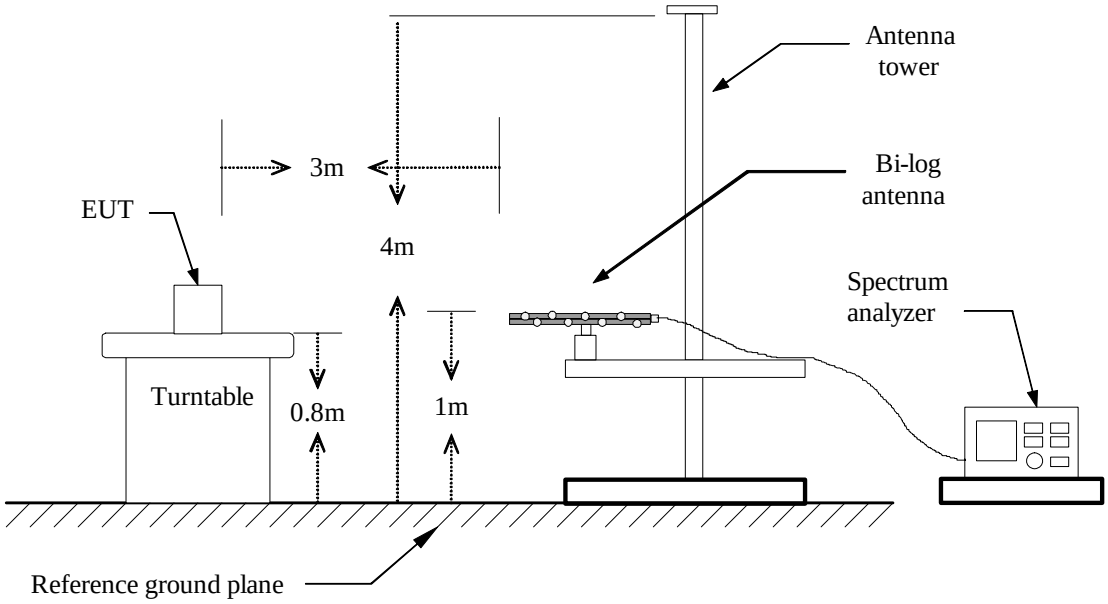
--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

7.2.2.5. TEST SETUP

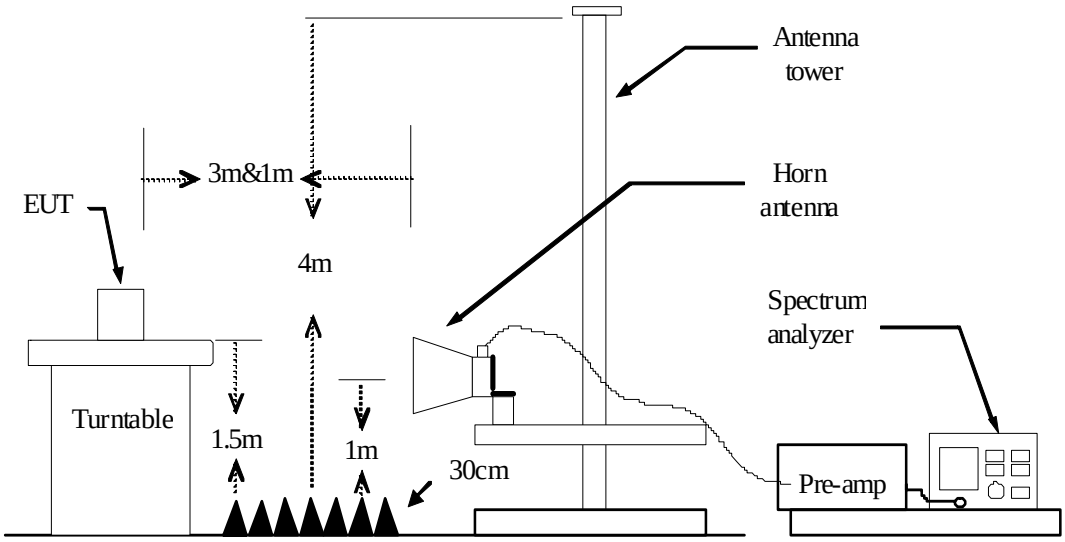
Below 30MHz



Below 1 GHz



Above 1 GHz



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.2.2.6. DATA SAPLE

Below 1GHz

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXX.XXXX	36.37	-12.20	24.17	40.00	-15.83	V	QP

Frequency (MHz) = Emission frequency in MHz
Reading (dBuV) = Uncorrected Analyzer / Receiver reading
Correct Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
Limit (dBuV/m) = Limit stated in standard
Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
Q.P. = Quasi-peak Reading

Above 1GHz

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXXX.XXXX	62.09	-11.42	50.67	74.00	-23.33	V	Peak
XXXX.XXXX	49.78	-11.42	38.36	54.00	-15.64	V	AVG

Frequency (MHz) = Emission frequency in MHz
Reading (dBuV) = Uncorrected Analyzer / Receiver reading
Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
Limit (dBuV/m) = Limit stated in standard
Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
Peak = Peak Reading
AVG = Average Reading

Calculation Formula

Margin (dB) = Result (dBuV/m) – Limits (dBuV/m)
Result (dBuV/m) = Reading (dBuV) + Correction Factor

7.2.2.7. TEST RESULTS

Below 1 GHz
Antenna 1

Test Mode: TX / IEEE 802.11b(CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 19, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
37.7600	59.02	-20.04	38.98	40.00	-1.02	V	QP
53.2800	56.12	-18.46	37.66	40.00	-2.34	V	QP
80.4400	54.27	-15.97	38.30	40.00	-1.70	V	QP
96.9300	51.09	-15.43	35.66	43.50	-7.84	V	QP
197.8100	44.31	-10.29	34.02	43.50	-9.48	V	QP
434.4900	41.45	-5.55	35.90	46.00	-10.10	V	QP
79.4700	47.48	-16.04	31.44	40.00	-8.56	H	QP
97.9000	50.35	-15.42	34.93	43.50	-8.57	H	QP
136.7000	43.68	-12.31	31.37	43.50	-12.13	H	QP
197.8100	48.68	-10.29	38.39	43.50	-5.11	H	QP
288.9900	44.17	-8.40	35.77	46.00	-10.23	H	QP
376.2900	38.98	-7.25	31.73	46.00	-14.27	H	QP

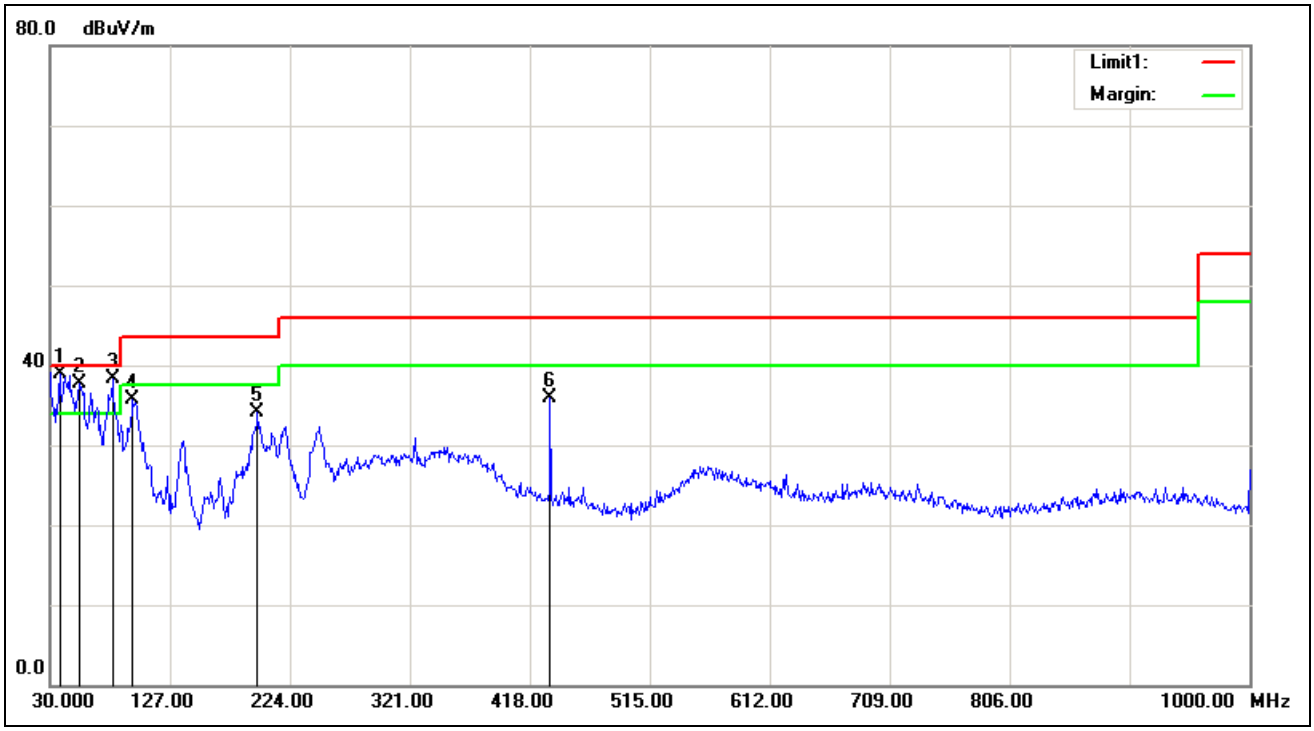
***Remark:** 1. No emission found between lowest internal used/generated frequency to 30MHz.*

2. Pre-scan all mode and recorded the worst case results in this report (802.11b (Low Channel)

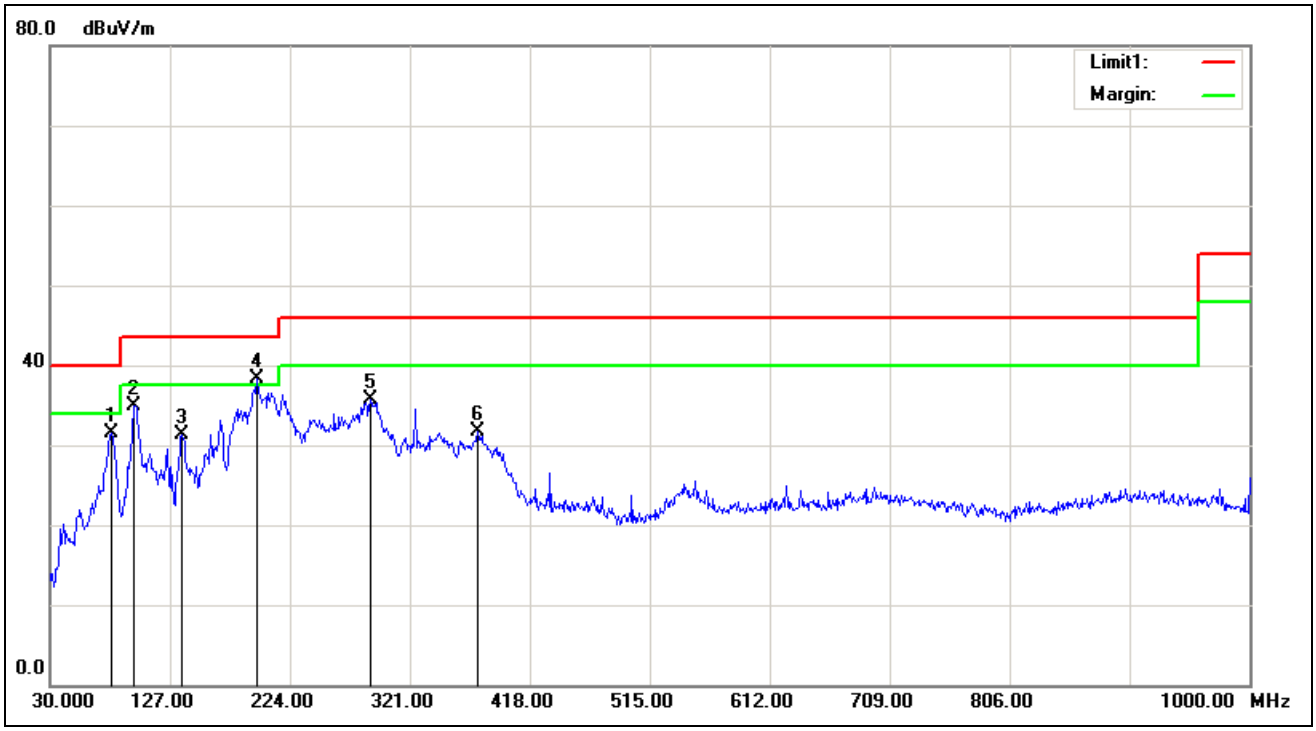
Notes:

1. *Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using Quasi-peak detector mode.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.*
4. *Frequency (MHz). = Emission frequency in MHz*
   Reading (dBμV/m) = Receiver reading
   Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
   Limit (dBμV/m) = Limit stated in standard
   Margin (dB) = Measured (dBμV/m) – Limits (dBμV/m)
   Antenna Pol e(H/V) = Current carrying line of reading

Vertical



Horizontal



Above 1 GHz
Antenna 0
Test Mode: TX / IEEE 802.11b(CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1315.000	47.54	-7.37	40.17	74.00	-33.83	V	peak
2584.000	44.49	-2.11	42.38	74.00	-31.62	V	peak
3250.000	43.21	-0.94	42.27	74.00	-31.73	V	peak
4276.000	40.09	2.56	42.65	74.00	-31.35	V	peak
4825.000	53.95	4.41	58.36	74.00	-15.64	V	peak
4825.000	47.29	4.41	51.70	54.00	-2.30	V	AVG
7336.000	42.99	8.36	51.35	74.00	-22.65	V	peak
1270.000	46.98	-7.53	39.45	74.00	-34.55	H	Peak
1954.000	49.90	-5.29	44.61	74.00	-29.39	H	Peak
3250.000	51.42	-0.94	50.48	74.00	-23.52	H	Peak
4825.000	44.84	4.41	49.25	74.00	-24.75	H	peak
5437.000	39.91	5.76	45.67	74.00	-28.33	H	Peak
5689.000	40.26	5.95	46.21	74.00	-27.79	H	peak

***REMARKS**:*

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11b (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1621.000	46.70	-6.65	40.05	74.00	-33.95	V	Peak
3250.000	43.33	-0.94	42.39	74.00	-31.61	V	Peak
4870.000	48.02	4.56	52.58	74.00	-21.42	V	Peak
4870.000	45.66	4.56	50.22	54.00	-3.78	V	AVG
5446.000	39.53	5.77	45.30	74.00	-28.70	V	peak
6148.000	40.40	6.32	46.72	74.00	-27.28	V	Peak
7336.000	43.32	8.36	51.68	74.00	-22.32	V	Peak
1954.000	46.38	-5.29	41.09	74.00	-32.91	H	Peak
2926.000	44.25	-1.49	42.76	74.00	-31.24	H	Peak
3250.000	52.64	-0.94	51.70	74.00	-22.30	H	Peak
4870.000	46.04	4.56	50.60	74.00	-23.40	H	Peak
5653.000	39.62	5.93	45.55	74.00	-28.45	H	Peak
7696.000	40.46	9.06	49.52	74.00	-24.48	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11b (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1630.000	46.89	-6.64	40.25	74.00	-33.75	V	Peak
2593.000	44.68	-2.09	42.59	74.00	-31.41	V	Peak
3250.000	43.80	-0.94	42.86	74.00	-31.14	V	Peak
4924.000	49.94	4.73	54.67	74.00	-19.33	V	peak
4924.000	47.07	4.73	51.80	54.00	-2.20	V	AVG
7336.000	43.60	8.36	51.96	74.00	-22.04	V	peak
8155.000	40.46	9.56	50.02	74.00	-23.98	V	peak
1954.000	46.05	-5.29	40.76	74.00	-33.24	H	Peak
2224.000	46.32	-3.77	42.55	74.00	-31.45	H	Peak
3250.000	51.30	-0.94	50.36	74.00	-23.64	H	Peak
4924.000	46.17	4.73	50.90	74.00	-23.10	H	Peak
7336.000	40.08	8.36	48.44	74.00	-25.56	H	Peak
7741.000	40.22	9.14	49.36	74.00	-24.64	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Antenna 1

Test Mode: TX / IEEE 802.11b(CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2611.000	44.79	-2.06	42.73	74.00	-31.27	V	peak
3250.000	44.60	-0.94	43.66	74.00	-30.34	V	peak
4825.000	40.69	4.41	45.10	74.00	-28.90	V	peak
4969.000	40.26	4.88	45.14	74.00	-28.86	V	peak
5707.000	40.50	5.96	46.46	74.00	-27.54	V	peak
6823.000	40.42	7.41	47.83	74.00	-26.17	V	peak
1711.000	47.63	-6.46	41.17	74.00	-32.83	H	Peak
3250.000	51.98	-0.94	51.04	74.00	-22.96	H	Peak
4825.000	49.93	4.41	54.34	74.00	-19.66	H	Peak
4825.000	47.34	4.41	51.75	54.00	-2.25	H	AVG
5599.000	39.52	5.91	45.43	74.00	-28.57	H	peak
6481.000	39.88	6.86	46.74	74.00	-27.26	H	peak
7336.000	42.93	8.36	51.29	74.00	-22.71	H	peak

***REMARKS**:*

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11b (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	49.00	-6.35	42.65	74.00	-31.35	V	Peak
2584.000	44.96	-2.11	42.85	74.00	-31.15	V	Peak
3250.000	51.21	-0.94	50.27	74.00	-23.73	V	Peak
4870.000	43.11	4.56	47.67	74.00	-26.33	V	Peak
6742.000	40.36	7.28	47.64	74.00	-26.36	V	Peak
7480.000	40.76	8.64	49.40	74.00	-24.60	V	Peak
1621.000	56.18	-6.65	49.53	74.00	-24.47	H	Peak
3250.000	55.25	-0.94	54.31	74.00	-19.69	H	Peak
3250.000	50.26	-0.94	49.32	54.00	-4.68	H	AVG
4195.000	40.41	2.28	42.69	74.00	-31.31	H	Peak
4870.000	47.74	4.56	52.30	74.00	-21.70	H	Peak
4870.000	47.05	4.56	51.61	54.00	-2.39	H	AVG
6445.000	39.67	6.80	46.47	74.00	-27.53	H	Peak
7336.000	43.45	8.36	51.81	74.00	-22.19	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11b (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1747.000	50.60	-6.38	44.22	74.00	-29.78	V	Peak
3250.000	44.86	-0.94	43.92	74.00	-30.08	V	Peak
4564.000	39.64	3.56	43.20	74.00	-30.80	V	Peak
4951.000	39.62	4.82	44.44	74.00	-29.56	V	Peak
5743.000	39.79	5.97	45.76	74.00	-28.24	V	Peak
7021.000	39.08	7.74	46.82	74.00	-27.18	V	Peak
1621.000	45.46	-6.65	38.81	74.00	-35.19	H	Peak
3250.000	52.27	-0.94	51.33	74.00	-22.67	H	Peak
4618.000	39.48	3.73	43.21	74.00	-30.79	H	Peak
4924.000	50.23	4.73	54.96	74.00	-19.04	H	Peak
4924.000	45.90	4.73	50.63	54.00	-3.37	H	AVG
5761.000	39.94	5.98	45.92	74.00	-28.08	H	Peak
7336.000	42.74	8.36	51.10	74.00	-22.90	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Antenna 0

Test Mode: TX / IEEE 802.11g(CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1333.000	47.60	-7.30	40.30	74.00	-33.70	V	Peak
2206.000	45.80	-3.87	41.93	74.00	-32.07	V	Peak
2926.000	48.47	-1.49	46.98	74.00	-27.02	V	Peak
3250.000	51.99	-0.94	51.05	74.00	-22.95	V	Peak
4420.000	40.15	3.07	43.22	74.00	-30.78	V	Peak
4825.000	42.24	4.41	46.65	74.00	-27.35	V	Peak
1621.000	48.72	-6.65	42.07	74.00	-31.93	H	Peak
2233.000	44.52	-3.72	40.80	74.00	-33.20	H	Peak
3250.000	43.81	-0.94	42.87	74.00	-31.13	H	Peak
4825.000	52.15	4.41	56.56	74.00	-17.44	H	Peak
4825.000	42.27	4.41	46.68	54.00	-7.32	H	AVG
5887.000	39.81	6.03	45.84	74.00	-28.16	H	Peak
7336.000	43.80	8.36	52.16	74.00	-21.84	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11g (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1720.000	52.32	-6.44	45.88	74.00	-28.12	V	Peak
1954.000	46.13	-5.29	40.84	74.00	-33.16	V	Peak
2584.000	44.79	-2.11	42.68	74.00	-31.32	V	Peak
2926.000	44.17	-1.49	42.68	74.00	-31.32	V	Peak
3250.000	52.40	-0.94	51.46	74.00	-22.54	V	Peak
4879.000	42.32	4.59	46.91	74.00	-27.09	V	Peak
1621.000	47.55	-6.65	40.90	74.00	-33.10	H	Peak
2152.000	45.14	-4.17	40.97	74.00	-33.03	H	Peak
3250.000	43.54	-0.94	42.60	74.00	-31.40	H	Peak
4870.000	48.34	4.56	52.90	74.00	-21.10	H	Peak
4870.000	46.37	4.56	50.93	54.00	-3.07	H	AVG
5923.000	39.77	6.05	45.82	74.00	-28.18	H	Peak
7336.000	43.39	8.36	51.75	74.00	-22.25	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11g (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2143.000	44.99	-4.22	40.77	74.00	-33.23	V	Peak
2854.000	44.65	-1.62	43.03	74.00	-30.97	V	Peak
3250.000	51.40	-0.94	50.46	74.00	-23.54	V	Peak
4924.000	45.94	4.73	50.67	74.00	-23.33	V	Peak
7111.000	39.96	7.92	47.88	74.00	-26.12	V	Peak
8209.000	39.40	9.54	48.94	74.00	-25.06	V	Peak
1351.000	46.24	-7.24	39.00	74.00	-35.00	H	Peak
3250.000	43.15	-0.94	42.21	74.00	-31.79	H	Peak
4933.000	49.14	4.76	53.90	74.00	-20.10	H	Peak
4933.000	40.97	4.76	45.73	54.00	-8.27	H	AVG
5662.000	39.47	5.94	45.41	74.00	-28.59	H	Peak
7012.000	39.47	7.72	47.19	74.00	-26.81	H	Peak
7336.000	43.20	8.36	51.56	74.00	-22.44	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Antenna 1

Test Mode: TX / IEEE 802.11g(CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2620.000	44.24	-2.04	42.20	74.00	-31.80	V	Peak
3250.000	50.89	-0.94	49.95	74.00	-24.05	V	Peak
4816.000	46.01	4.38	50.39	74.00	-23.61	V	Peak
5500.000	39.08	5.87	44.95	74.00	-29.05	V	Peak
6526.000	39.32	6.93	46.25	74.00	-27.75	V	Peak
6760.000	39.13	7.31	46.44	74.00	-27.56	V	Peak
1324.000	45.79	-7.34	38.45	74.00	-35.55	H	Peak
3250.000	52.18	-0.94	51.24	74.00	-22.76	H	Peak
4825.000	48.16	4.41	52.57	74.00	-21.43	H	Peak
4825.000	41.00	4.41	45.41	54.00	-8.59	H	AVG
5680.000	39.80	5.95	45.75	74.00	-28.25	H	Peak
7336.000	43.21	8.36	51.57	74.00	-22.43	H	Peak
7687.000	39.87	9.04	48.91	74.00	-25.09	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11g (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2593.000	44.59	-2.09	42.50	74.00	-31.50	V	Peak
3250.000	46.39	-0.94	45.45	74.00	-28.55	V	Peak
4411.000	39.60	3.04	42.64	74.00	-31.36	V	Peak
4879.000	39.43	4.59	44.02	74.00	-29.98	V	Peak
5680.000	39.97	5.95	45.92	74.00	-28.08	V	Peak
6292.000	39.18	6.55	45.73	74.00	-28.27	V	Peak
1621.000	50.06	-6.65	43.41	74.00	-30.59	H	Peak
3250.000	55.12	-0.94	54.18	74.00	-19.82	H	Peak
3250.000	50.89	-0.94	49.95	54.00	-4.05	H	AVG
4870.000	46.15	4.56	50.71	74.00	-23.29	H	Peak
7336.000	43.57	8.36	51.93	74.00	-22.07	H	Peak
7993.000	39.89	9.64	49.53	74.00	-24.47	H	Peak
8371.000	40.62	9.45	50.07	74.00	-23.93	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11g (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
3250.000	45.21	-0.94	44.27	74.00	-29.73	V	Peak
4861.000	39.57	4.53	44.10	74.00	-29.90	V	Peak
5635.000	39.46	5.93	45.39	74.00	-28.61	V	Peak
5896.000	39.30	6.04	45.34	74.00	-28.66	V	Peak
7102.000	39.62	7.90	47.52	74.00	-26.48	V	Peak
7705.000	39.59	9.07	48.66	74.00	-25.34	V	Peak
1621.000	51.62	-6.65	44.97	74.00	-29.03	H	Peak
3250.000	52.15	-0.94	51.21	74.00	-22.79	H	Peak
4924.000	45.05	4.73	49.78	74.00	-24.22	H	Peak
5554.000	39.79	5.89	45.68	74.00	-28.32	H	Peak
7336.000	43.11	8.36	51.47	74.00	-22.53	H	Peak
7552.000	39.88	8.78	48.66	74.00	-25.34	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Combine with Antenna 0 and Antenna 1

Test Mode: TX / IEEE 802.11n HT20 MHz (CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1954.000	52.40	-5.29	47.11	74.00	-26.89	V	Peak
2224.000	46.63	-3.77	42.86	74.00	-31.14	V	Peak
2593.000	45.42	-2.09	43.33	74.00	-30.67	V	Peak
3250.000	51.08	-0.94	50.14	74.00	-23.86	V	Peak
4825.000	53.05	4.41	57.46	74.00	-16.54	V	Peak
4825.000	41.17	4.41	45.58	54.00	-8.42	V	AVG
7489.000	39.88	8.65	48.53	74.00	-25.47	V	Peak
1648.000	46.54	-6.60	39.94	74.00	-34.06	H	Peak
3250.000	52.27	-0.94	51.33	74.00	-22.67	H	Peak
4231.000	40.75	2.40	43.15	74.00	-30.85	H	Peak
4825.000	55.86	4.41	60.27	74.00	-13.73	H	Peak
4825.000	45.11	4.41	49.52	54.00	-4.48	H	AVG
6013.000	39.53	6.10	45.63	74.00	-28.37	H	Peak
7336.000	43.41	8.36	51.77	74.00	-22.23	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11n HT20 MHz (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1711.000	52.95	-6.46	46.49	74.00	-27.51	V	Peak
2206.000	45.91	-3.87	42.04	74.00	-31.96	V	Peak
3250.000	52.91	-0.94	51.97	74.00	-22.03	V	Peak
4870.000	47.20	4.56	51.76	74.00	-22.24	V	Peak
5221.000	40.01	5.37	45.38	74.00	-28.62	V	Peak
6166.000	39.80	6.35	46.15	74.00	-27.85	V	Peak
2926.000	43.57	-1.49	42.08	74.00	-31.92	H	Peak
3250.000	54.01	-0.94	53.07	74.00	-20.93	H	Peak
4870.000	55.60	4.56	60.16	74.00	-13.84	H	Peak
4870.000	42.59	4.56	47.15	54.00	-6.85	H	AVG
5653.000	39.45	5.93	45.38	74.00	-28.62	H	Peak
6193.000	39.33	6.39	45.72	74.00	-28.28	H	Peak
7336.000	42.92	8.36	51.28	74.00	-22.72	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / EEE 802.11n HT20 MHz (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1711.000	57.17	-6.46	50.71	74.00	-23.29	V	Peak
1954.000	46.11	-5.29	40.82	74.00	-33.18	V	Peak
3250.000	50.55	-0.94	49.61	74.00	-24.39	V	Peak
4312.000	40.20	2.69	42.89	74.00	-31.11	V	Peak
4924.000	44.62	4.73	49.35	74.00	-24.65	V	Peak
7777.000	39.62	9.22	48.84	74.00	-25.16	V	Peak
1621.000	59.29	-6.65	52.64	74.00	-21.36	H	Peak
1621.000	57.03	-6.65	50.38	54.00	-3.62	H	AVG
2602.000	44.81	-2.08	42.73	74.00	-31.27	H	Peak
3250.000	50.91	-0.94	49.97	74.00	-24.03	H	Peak
4924.000	52.27	4.73	57.00	74.00	-17.00	H	Peak
4924.000	44.90	4.73	49.63	54.00	-4.37	H	AVG
6229.000	41.18	6.45	47.63	74.00	-26.37	H	Peak
7336.000	43.29	8.36	51.65	74.00	-22.35	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Combine with Antenna 0 and Antenna 1

Test Mode: TX/ IEEE 802.11n HT40 MHz (CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2926.000	47.35	-1.49	45.86	74.00	-28.14	V	Peak
3250.000	49.82	-0.94	48.88	74.00	-25.12	V	Peak
4834.000	43.50	4.44	47.94	74.00	-26.06	V	Peak
5995.000	39.94	6.08	46.02	74.00	-27.98	V	Peak
6427.000	39.58	6.77	46.35	74.00	-27.65	V	Peak
7498.000	39.95	8.67	48.62	74.00	-25.38	V	Peak
1621.000	47.35	-6.65	40.70	74.00	-33.30	H	Peak
2602.000	44.38	-2.08	42.30	74.00	-31.70	H	Peak
3250.000	50.33	-0.94	49.39	74.00	-24.61	H	Peak
4843.000	53.02	4.47	57.49	74.00	-16.51	H	Peak
4843.000	42.42	4.47	46.89	54.00	-7.11	H	AVG
7336.000	44.28	8.36	52.64	74.00	-21.36	H	Peak
7336.000	41.80	8.36	50.16	54.00	-3.84	H	AVG
7570.000	40.25	8.81	49.06	74.00	-24.94	H	Peak

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX / IEEE 802.11n HT40 MHz (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1954.000	46.02	-5.29	40.73	74.00	-33.27	V	Peak
2251.000	45.50	-3.62	41.88	74.00	-32.12	V	Peak
2953.000	48.46	-1.44	47.02	74.00	-26.98	V	Peak
3250.000	53.95	-0.94	53.01	74.00	-20.99	V	Peak
3250.000	51.22	-0.94	50.28	54.00	-3.72	V	Peak
4879.000	43.38	4.59	47.97	74.00	-26.03	V	AVG
7336.000	41.31	8.36	49.67	74.00	-24.33	V	Peak
3250.000	53.94	-0.94	53.00	74.00	-21.00	H	Peak
3250.000	47.56	-0.94	46.62	54.00	-7.38	H	AVG
4060.000	40.05	1.80	41.85	74.00	-32.15	H	Peak
4879.000	48.71	4.59	53.30	74.00	-20.70	H	Peak
4879.000	44.87	4.59	49.46	54.00	-4.54	H	AVG
5347.000	39.40	5.60	45.00	74.00	-29.00	H	Peak
6022.000	39.21	6.12	45.33	74.00	-28.67	H	Peak
7336.000	44.28	8.36	52.64	74.00	-21.36	H	Peak
7336.000	41.66	8.36	50.02	54.00	-3.98	H	AVG

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Test Mode: TX/ IEEE 802.11n HT40 MHz (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** June 14, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2224.000	46.23	-3.77	42.46	74.00	-31.54	V	Peak
3250.000	50.23	-0.94	49.29	74.00	-24.71	V	Peak
4879.000	44.35	4.59	48.94	74.00	-25.06	V	Peak
5707.000	39.45	5.96	45.41	74.00	-28.59	V	Peak
6679.000	39.42	7.18	46.60	74.00	-27.40	V	Peak
7336.000	39.66	8.36	48.02	74.00	-25.98	V	Peak
1621.000	49.49	-6.65	42.84	74.00	-31.16	H	Peak
2575.000	44.09	-2.12	41.97	74.00	-32.03	H	Peak
3250.000	51.07	-0.94	50.13	74.00	-23.87	H	Peak
4888.000	52.12	4.61	56.73	74.00	-17.27	H	Peak
4888.000	46.64	4.61	51.25	54.00	-2.75	H	AVG
6328.000	38.94	6.61	45.55	74.00	-28.45	H	Peak
7336.000	44.08	8.36	52.44	74.00	-21.56	H	Peak
7336.000	41.40	8.36	49.76	54.00	-4.24	H	AVG

REMARKS:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

7.3. 6dB BANDWIDTH MEASUREMENT

7.3.1. LIMITS

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz.

7.3.2. TEST INSTRUMENTS

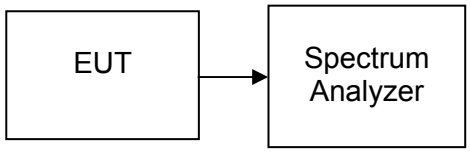
Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	N9010A	MY52221469	02/21/2017	02/20/2018

7.3.3. TEST PROCEDURES (please refer to measurement standard)

8.2 Option 2:

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW $\geqslant$ 3 RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be $\geqslant$ 6 dB.

7.3.4. TEST SETUP



7.3.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	Bandwidth (MHz)		Limit (kHz)	Test Result
		Antenna 0	Antenna 1		
Low	2412	7.066	7.045	>500	PASS
Mid	2437	7.070	7.043		PASS
High	2462	6.998	7.077		PASS

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Bandwidth (MHz)		Limit (kHz)	Test Result
		Antenna 0	Antenna 1		
Low	2412	15.140	15.130	>500	PASS
Mid	2437	15.140	15.100		PASS
High	2462	15.160	15.100		PASS

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Bandwidth (MHz)		Limit (kHz)	Test Result
		Antenna 0	Antenna 1		
Low	2412	15.140	15.150	>500	PASS
Mid	2437	15.140	15.050		PASS
High	2462	15.140	15.130		PASS

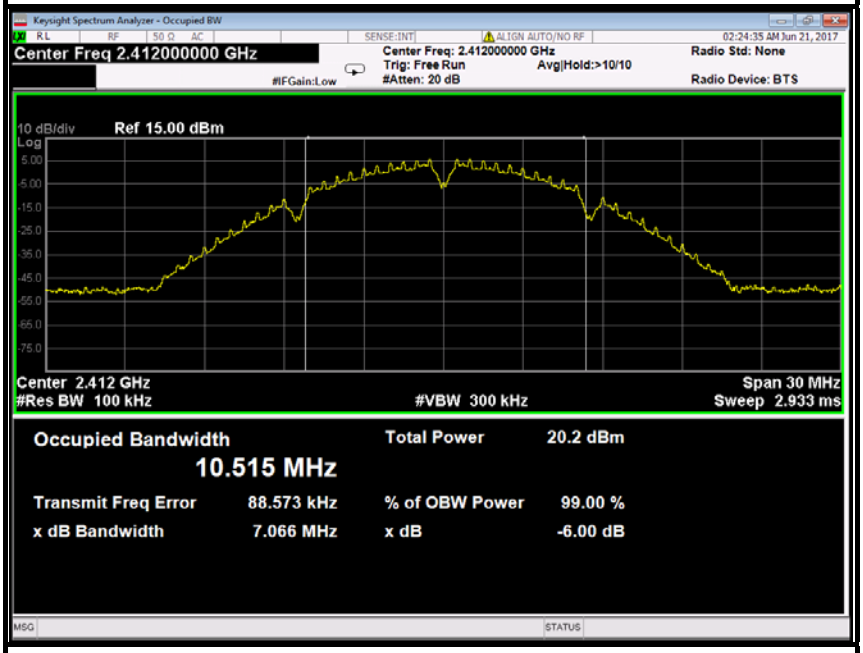
Test mode: IEEE 802.11n HT40 MHz

Channel	Frequency (MHz)	Bandwidth (MHz)		Limit (kHz)	Test Result
		Antenna 0	Antenna 1		
Low	2422	33.850	32.600	>500	PASS
Mid	2437	33.850	33.810		PASS
High	2452	33.810	31.360		PASS

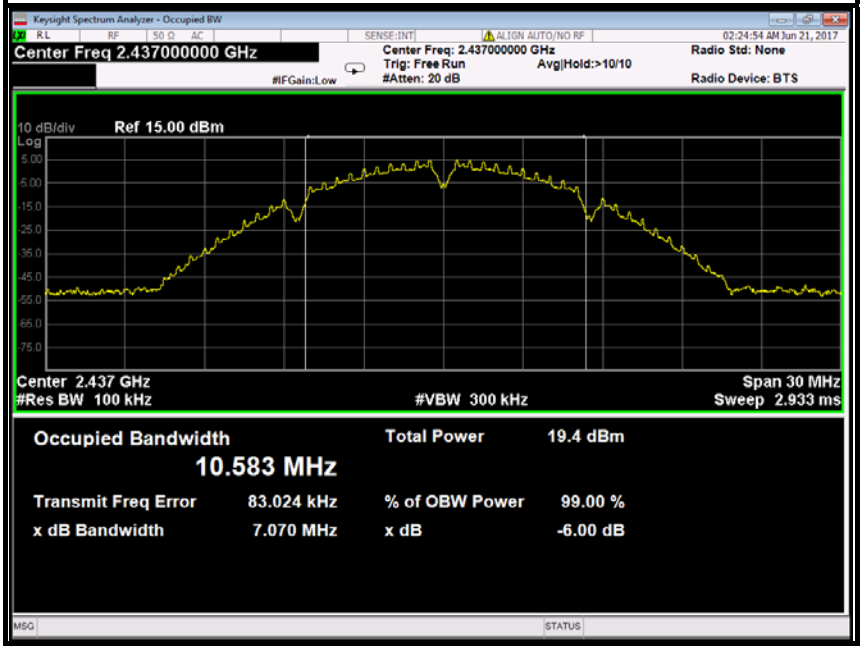
Test Plot

IEEE 802.11b mode (Antenna 0)

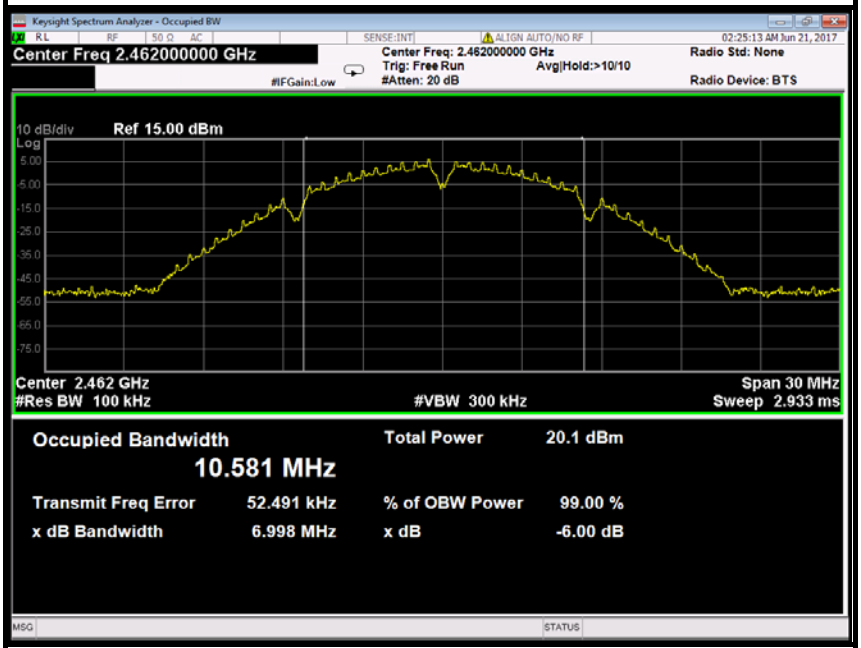
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

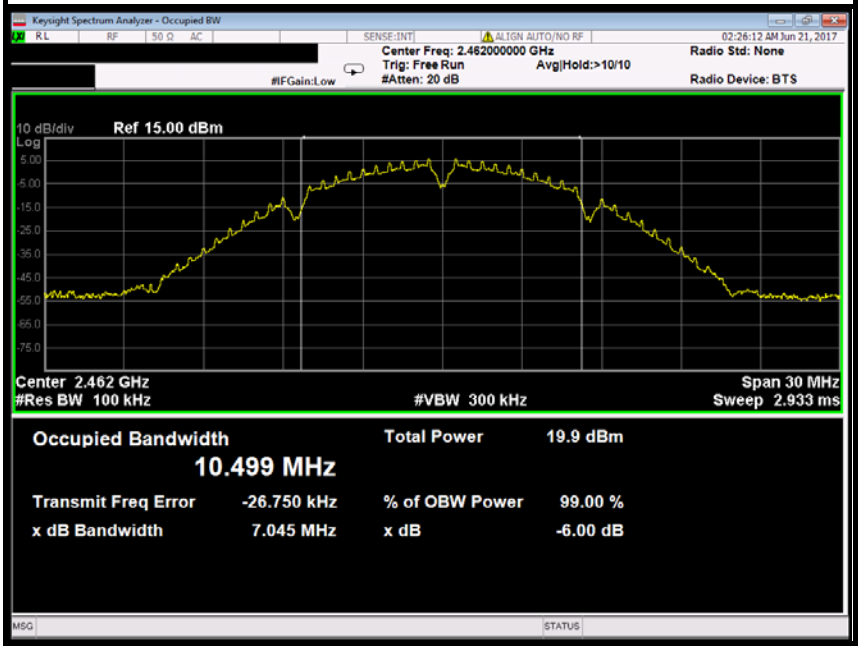


6dB Bandwidth (CH High)

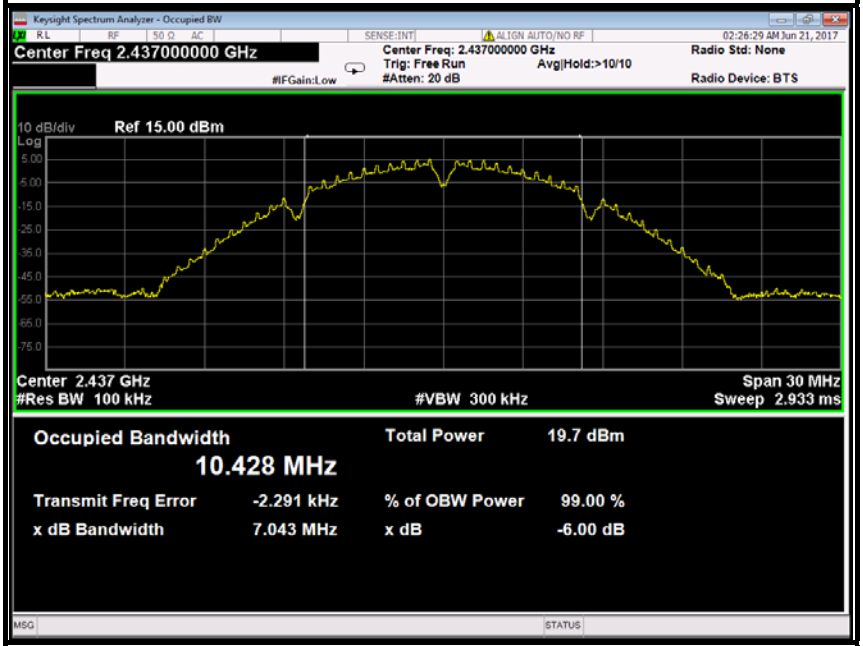


IEEE 802.11b mode (Antenna 1)

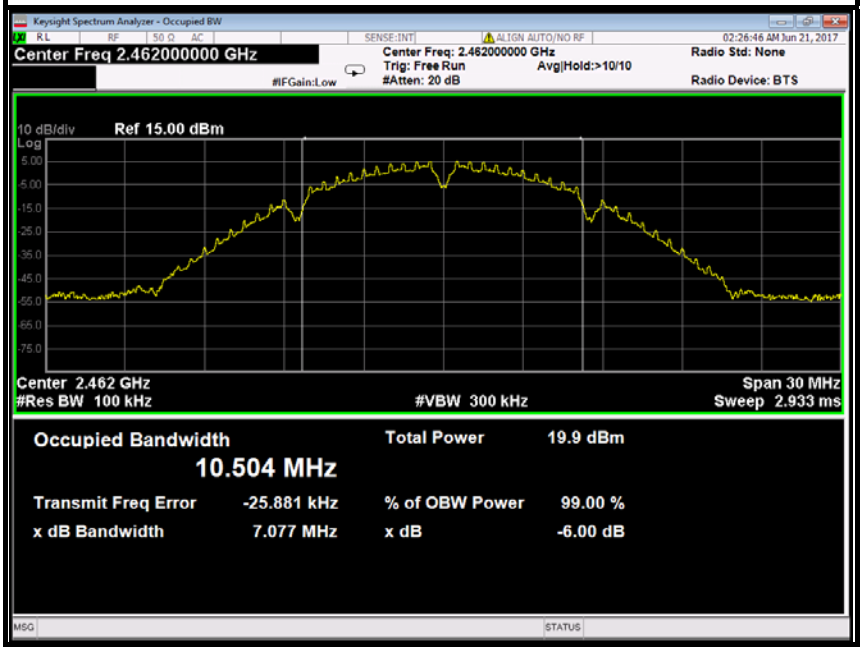
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

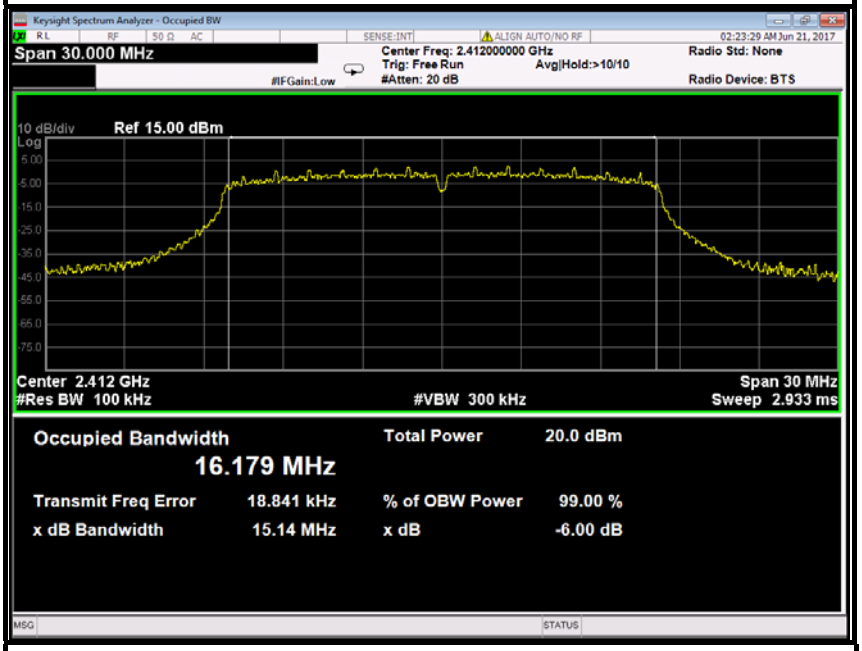


6dB Bandwidth (CH High)

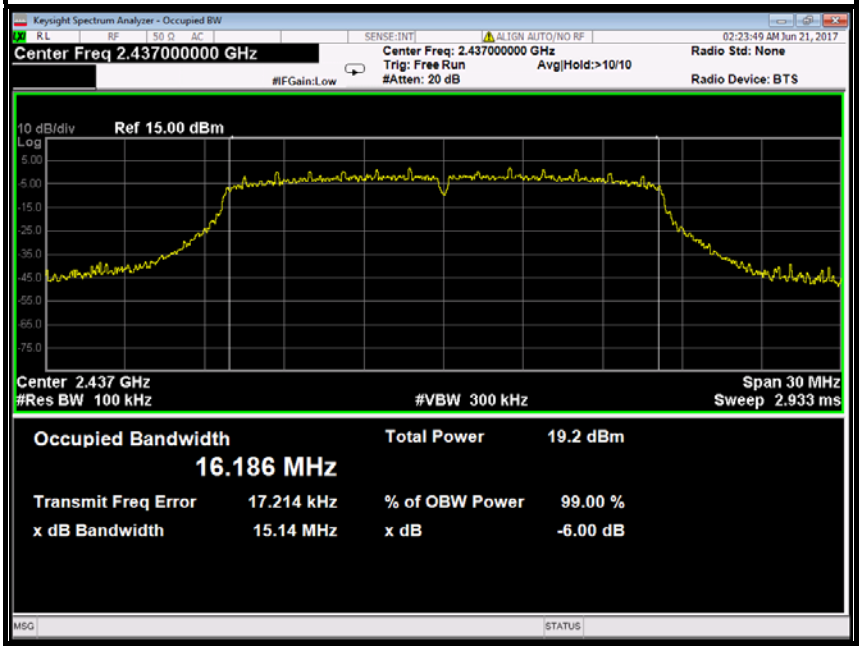


IEEE 802.11g mode (Antenna 0)

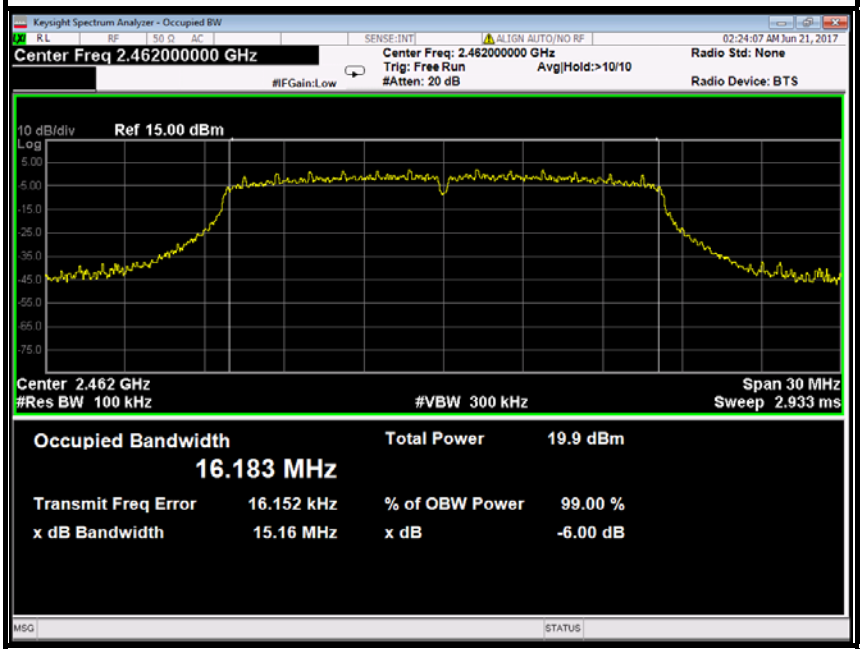
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

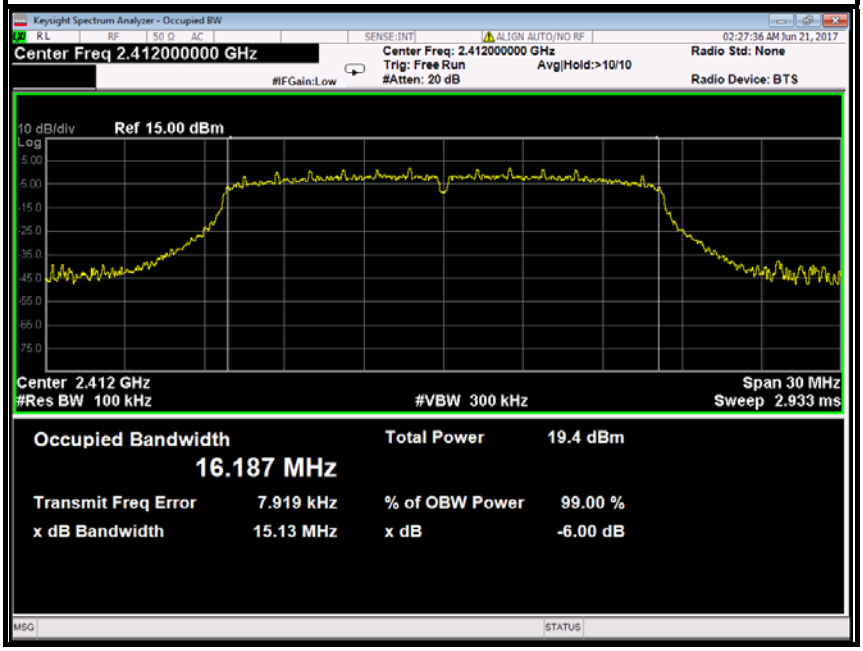


6dB Bandwidth (CH High)

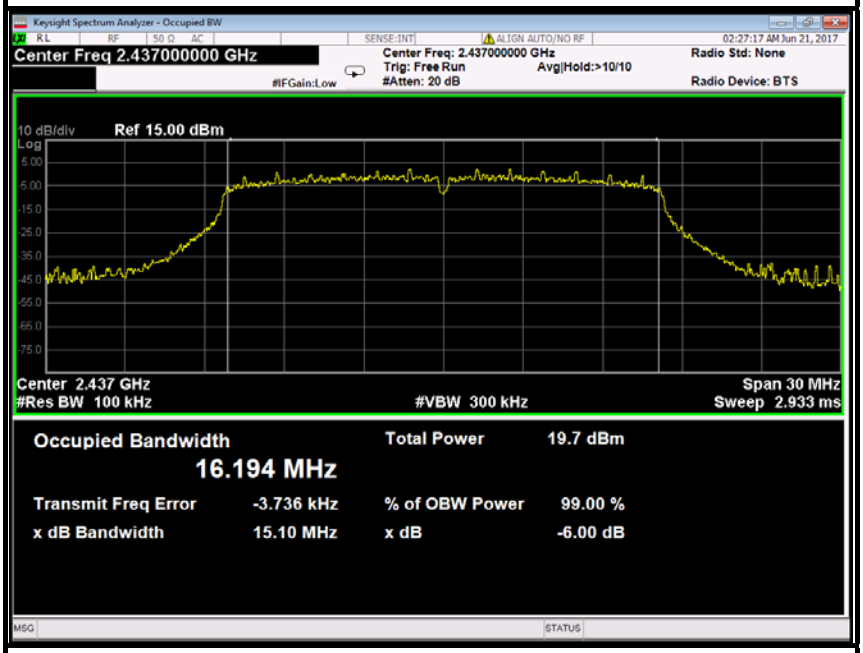


IEEE 802.11g mode (Antenna 1)

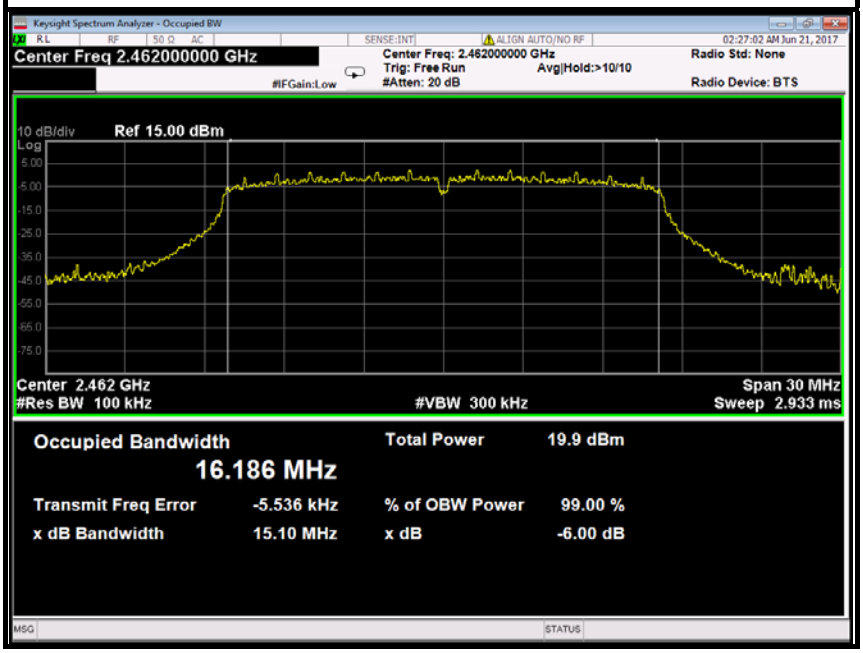
6dB Bandwidth (CH Low)



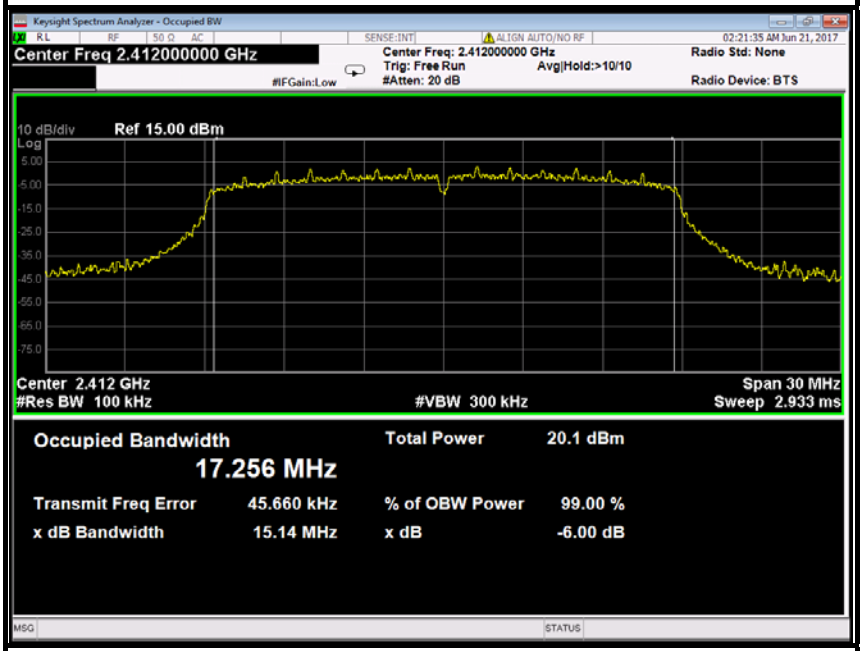
6dB Bandwidth (CH Mid)



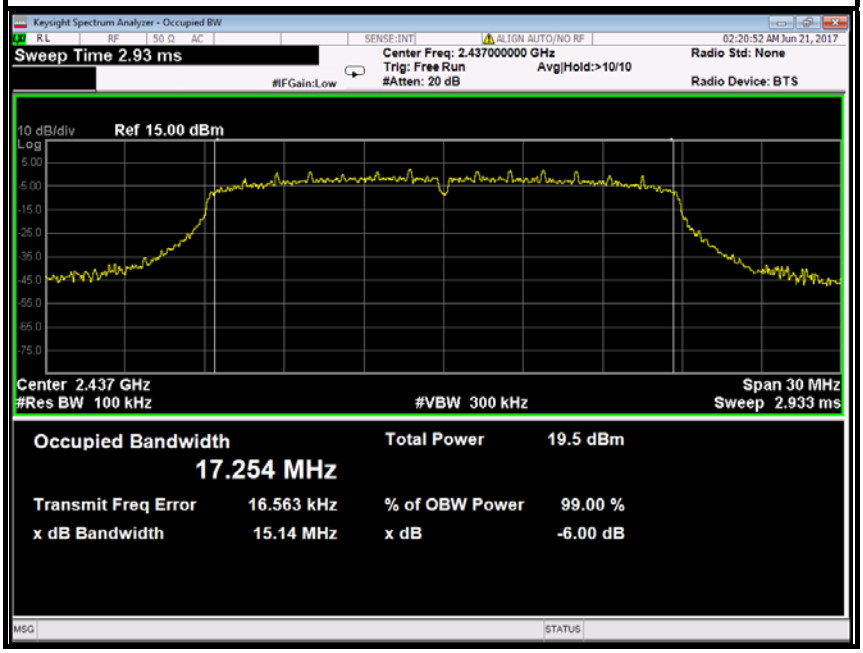
6dB Bandwidth (CH High



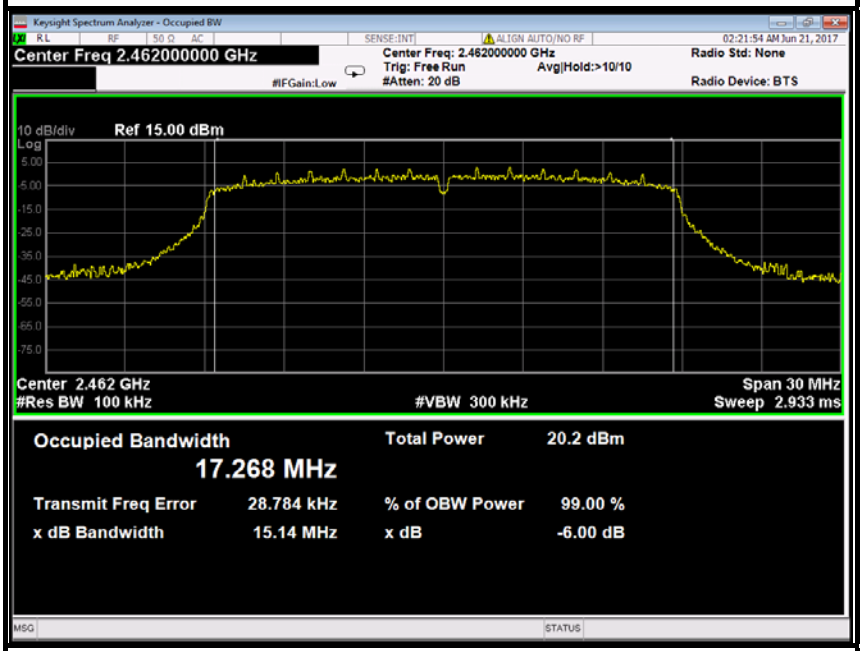
IEEE 802.11n HT20 MHz mode (Antenna 0)
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)



IEEE 802.11n HT20 MHz mode (Antenna 1)

6dB Bandwidth (CH Low)